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Persistence of abnormal left ventricular systolic function after an aortic valve replacement for to aortic stenosis

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Background.— Patients with severe aortic stenosis have impaired systolic function, despite a normal LVEF. Global Longitudinal Strain (GLS) is a simple and reproducible measurement of these abnormalities of contraction. Measurements of distortion (strain) in the radial (GRS) and circumferential direction (GCS) are also possible.
Objective.— We want to evaluate the impact of aortic valve replacement for severe symptomatic aortic valve stenosis on the myocardial function recovery evaluated according to a dynamic protocol: at rest and during a standardized stress echocardiography.
Methods.— We prospectively studied 22 patients 6 months after aortic valve replacement. These patients were treated with the same aortic valve bioprosthesis (Magna Ease). These patients gave their informed consent. They were able to provide a standardized effort on a tilting table. Rest echocardiography showed normal functioning of the prosthesis, normal LVEF, without other valvular disease.
Results.— At rest, left ventricular ejection fraction(68.68 ± 9.16%), septal wall end-diastolic thickness (13.23 ± 2.68%), left ventricular end-diastolic diameter (50.4 ± 8.5 mm) were measured at the same time that the GLS (−17.27 ± 3.23%). Despite a normal LV EF, 36.36% of patients have a GLS < −17%. The GCS was on average −20.85 ± 5.16%. 22.7% of patients have a GCS < −17%. Nevertheless most patients have normal GRS (44.69 ± 18.02%). During exercise, most patients in our study do not increase LVEF, despite the good hemodynamic performance of the valve prosthesis (mean transaortic gradient at rest was 17.9 ± 7.52 mm Hg, with a mean valve area to 1.31 ± 0.29 cm^2 at rest and 1.32 ± 0.27 cm^2 during exercise). Only 31.8% of patients show an increase in LVEF greater than 5% during a planned submaximal effort at 60-watt. The patients should reach a heart rates ∼110 ± 10/min and exercise should last over 8 minutes. The GLS does not increase during exercise with a mean value to the effort of −18.05 ± 3.47%. Only 9% of patients show increase of LV longitudinal function during exercise with an increase in GLS of 5% or more.
Conclusion.— After aortic valve replacement for severe aortic stenosis, abnormal LV systolic function can be objectified via measurements of the GCS and GLS.

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Low-flow low-gradient aortic stenosis: Prognostic impact and effect of surgery

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Background.— Low-flow low-gradient aortic stenosis with preserved ejection fraction is a recently described entity, but its prognostic implication has only been little studied.
LVEF ≥ 50% were prospectively included. We performed 2D-strain imaging to assess LV systolic function. Global afterload was evaluated by valvulo-arterial impedance (Zva). Four groups were defined depending on flow and gradient: low flow was defined as a stroke volume index (SVi) ≤ 35 mL/m^2, and low gradient as a mean gradient (MG) ≤ 40 mmHg.
Results.— Group 1 (normal flow high gradient) represented the majority of our patients (231 patients, 63.5%). Three-year survival was 87%. Referral rate for surgery was 75%. There was a significant improvement of survival among the surgery group (88% vs 75% in the medical group, $P = 0.035$).
Group 2 (low flow high gradient) represented 46 patients (12.6%). Three-year survival was excellent: 95% (P = ns vs group 1). Referral rate for surgery was 76%. There was a significant improvement of survival among the surgery group (100% vs 76% in the medical group, $P = 0.01$).
Group 3 (high flow low gradient) represented 57 patients (15.7%). Three-year survival was good: 85% (P = ns vs group 1). Referral rate for surgery was 55%. There was a significant improvement of survival among the surgery group (90.6% vs 74.7% in the medical group, $P = 0.04$).
Group 4 (low flow high gradient) represented 30 patients (8.2%). Three-year survival was the lowest: 64% ($P = 0.04$ vs group 2). Referral rate for surgery was 56%. However there was no significant improvement with surgery (3-year survival 61.6% vs 72.7% in the medical group, $P = 0.93$).
Conclusion.— Low-flow low-gradient aortic stenosis is a rare disease, and its prognosis does not seem to be improved by surgery. However these data need to be confirmed in further studies.

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Long-term follow-up of patients with the carcinoid syndrome

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Background.— Carcinoid heart disease (CHD) may occur in patients presenting with carcinoid tumor and carcinoid syndrome. Studies evaluating the echocardiographic follow-up of these patients remain rare. The aim of this prospective study was to assess the progression of CHD.
Methods.— We studied 90 consecutive patients presenting with carcinoid tumor and carcinoid syndrome. All patients underwent annual transthoracic echocardiographic studies and biological carcinoid markers. We used a previous validated score of CHD severity.
Results.— At baseline, prevalence of right- and left-sided CHD was 32% and 8%, respectively, whereas at the end of follow-up (mean FU: 38 months), this prevalence was respectively 52% and 20%. Correlations were strong between urinary 5-HIAA and CHD score ($r = 0.86$, $P < 0.0001$). All patients with at least 3 years of carcinoid syndrome and increased level of urinary 5-HIAA presented with echocardiographic evidence of CHD. Interestingly, after 3 years of echocardiographic follow-up of treated patients with carcinoid syndrome but without CHD, no patients developed CHD.
Conclusion.— Prevalence of CHD remains high and increases during follow-up. Carcinoid heart disease progresses over time, highlighting the need for echocardiographic follow-up once the diagnosis of carcinoid syndrome is made.

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